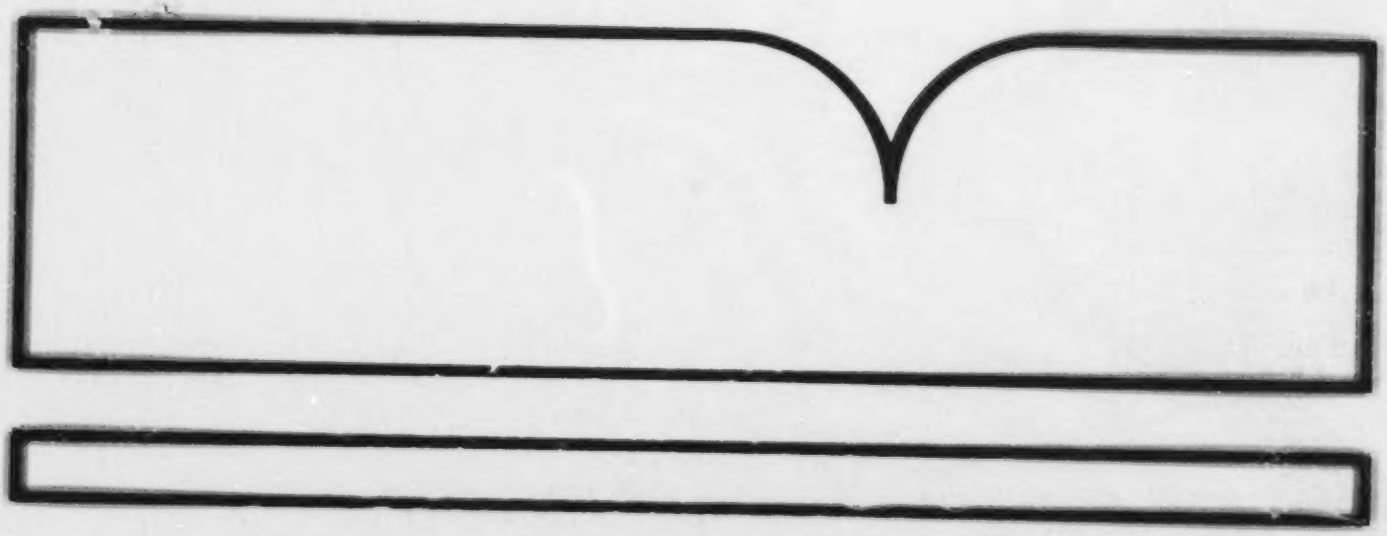
PB89-204861

Superfund Record of Decision (EPA Region 9) Motorola (52nd Street Plant), Phoenix, Arizona (First Remedial Action), September 1988

(U.S.) Environmental Protection Agency, Washington, DC

30 September 1988



U.S. Department of Commerce
National Technical Information Service
NTIS

United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R09-88/024
September 1988

PB89-204861

EPA

Superfund Record of Decision:

Motorola (52nd Street Plant), AZ

REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
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SUPERFUND RECORD OF DECISION
Motorola 52nd Street Facility, AZ
First Remedial Action

5. Report Date 09/30/88

6.

7. Author(s)

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U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

13. Type of Report & Period Covered
800/000

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

The Motorola 52nd Street site is located in the eastern part of the City of Phoenix, Maricopa County, Arizona. The site is bounded by the Phoenix Military Reservation and mixed residential and commercial neighborhoods. The site is currently owned by Motorola, Inc., which operates a manufacturing facility at the site using solvents for various manufacturing processes. In January 1983, Motorola tested some underground storage tanks used to store virgin solvents for leaks and determined that a 5,000-gallon tank containing TCA was leaking. Subsequently, Motorola conducted a preliminary investigation, which indicated soil and ground water contamination on the plant site and ground water contamination offsite to the west. Motorola initiated an onsite ground water treatment program in 1986, which included treatability testing, design and installation of a Pilot Treatment Plant (PTP), treatment of ground water, and beneficial use of the effluent in the plant's air fume scrubbers. The PTP is still in operation. The selected remedy for this ROD requires partial cleanup of onsite and offsite organic solvents contamination in the soil and alluvium groundwater. A subsequent remedial action will address cleanup of all onsite and offsite contamination in the soil, alluvium ground water, and the bedrock underlying the alluvium. The primary contaminant of concern affecting the soil and ground water is TCA.
(See Attached Sheet)

17. Document Analysis a. Descriptors
Record of Decision
Motorola 52nd Street Facility, AZ
First Remedial Action
Contaminated Media: gw, soil
Key Contaminants: VOCs (1,1,1-TCA), metals

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement

19. Security Class (This Report)	21. No. of Pages
None	48
20. Security Class (This Page) None	22. Price MF PB91-395 $6.95

(See ANSI-Z39.18) See Instructions on Reverse

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EPA/ROD/R09-88/024
Motorola 52nd Street Facility, AZ
First Remedial Action

16. ABSTRACT (continued)

The selected remedial action for this site includes: onsite soil-gas extraction and treatment using granular activated carbon systems; pump and treatment of on- and offsite ground water with treatment onsite and use of the treated ground water in site manufacturing processes; and ground water monitoring. The estimated present worth cost for this remedial action is $7,600,000 with annual O&M costs of $700,000.

RECORD OF DECISION

Motorola 52nd Street Site

Phoenix, Arizona

September, 1988

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Tab A

RECORD OF DECISION

DECLARATION

SITE NAME AND LOCATION:

Motorola 52nd Street Facility
Phoenix, Arizona

STATEMENT OF BASIS AND PURPOSE:

This document serves as EPA concurrence with the remedial action for the Motorola 52nd Street site, as approved by the Arizona Department of Environmental Quality (ADEQ). ADEQ approved this remedial action in conformance with: the Arizona Administrative Code (A.A.C. R18-7-108, Remedial Action Plan); Arizona Revised Statute (A.R.S. §49-282, Water Quality Assurance Revolving Fund); CERCLA, as amended by SARA; the National Contingency Plan, to the extent practicable; and relevant state and federal requirements.

This EPA concurrence with the State's selection of remedy is based upon ADEQ's Letter of Determination, the Remedial Action Plan, the Responsiveness Summary, and the Administrative Record for this site. The attached index lists the items comprising the administrative record.

DESCRIPTION OF THE REMEDIAL ACTION:

This is an operable unit for the Motorola 52nd Street site. The selected remedy provides partial clean-up of on-site and off-site contamination by organic solvents in the soil and alluvium ground water. The overall and final remedy will address clean-up of all on-site and off-site contamination in the soil, alluvium ground water, and the bedrock underlying the alluvium.

The selected remedy consists of soil-gas and ground water recovery and treatment at an on-site facility. On-site, soil-gas from the main source areas will be extracted and alluvium ground water will be pumped. One-half mile off-site, near the Old Cross Cut Canal, alluvium ground water will be pumped. Both the soil-gas and the contaminated ground water will be treated at an on-site facility. The treated ground water will be used in the manufacturing processes, replacing potable water supplied by the City of Phoenix. ADEQ's Letter of Determination and the Remedial Action Plan describes the approved remedy in greater detail.

DECLARATION.

EPA concurs with the remedy selected by the ADEQ for this operable unit at the Motorola 52nd Street site. The remedy will be protective of human health and the environment, is cost-effective, and attains the Federal and State requirements that are applicable or relevant and appropriate (ARARs), except as noted here: specific to this site, this remedy is unlikely to meet drinking water standards in the aquifer during the period of the operable unit. A waiver can be justified for this ARAR, on the basis that it will be addressed in the final Record of Decision. This remedy satisfies the statutory preference for remedies which employ treatment to reduce toxicity, mobility or volume as a principal element, and uses permanent solutions and alternative treatment technologies to the maximum extent practicable.

As this remedy will result in hazardous substances remaining on-site above health-based levels, a review will be conducted within five years after commencement of remedial action to ensure the remedy continues to provide adequate protection of human health and the environment.

9.30.88
Date

Daniel W. McGovern
Regional Administrator

Tab B

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Rose Mofford, Governor
Ronald L. Miller, Ph.D., Acting Director

Letter of Determination
for
Motorola 52nd Street Facility, Phoenix

September 27, 1988

CERTIFIED MAIL
Return Receipt Requested

Mr. Robert Lee, Manager
Environmental Affairs
Discrete and Special Technologies Group
5005 East McDowell Road
Phoenix, Arizona 85008

Dear Mr. Lee:

RE: Approval of Draft Remedial Action Plan (RAP)
for Motorola 52nd Street Facility (June 24, 1988).

The Draft Remedial Action Plan has been reviewed for conformance with the Arizona Administrative Code A.A.C. R18-7-108 (Remedial Action Plan), Arizona Revised Statute A.R.S. § 49-282 Water Quality Assurance Revolving Fund (WQARF), the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), the Superfund Amendments and Reauthorization Act of 1986 (SARA), and other pertinent state and federal requirements.

The draft Remedial Action Plan is approved. This decision took into consideration the comparison of Alternative C, (the approved alternative), with alternatives A and D and the no action alternative. Each alternative was evaluated using the same criteria. See exhibit A. In addition, the decision is consistent with recommendations made in the Health Assessment conducted by the Agency for Toxic Substances and Disease Registry (ATSDR), of the U.S. Public Health Service.

The following provides a brief historical summary of the contamination problem, including initial efforts to

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remediate, along with a discussion of the Alternative C and how this operable unit meets the evaluation criteria and provide a containment and treatment remedy that can be implemented on an accelerated schedule.

Location

The Motorola 52nd Street plant is located in the eastern part of the City of Phoenix (attachment 1). A legal description of the plant boundary is included in the RAP. Major geographic features are the Papago Buttes to the east of the plant, the Salt River flowing westerly about one mile to the south, the Old Crosscut Canal located along 46th Street, and the Grand Canal which flows northwesterly through the area west of 40th Street and Van Buren Street. Phoenix Sky Harbor Airport is located approximately 1 1/2 miles to the southwest. The Phoenix Military Reservation, a 3/4 square mile area used by the Arizona National Guard, is located northeast and east of the plant.

Reason for the Remedial Action Plan

In November 1982, Motorola discovered a discrepancy in the inventory records for 1,1,1-trichloroethane (TCA) at the 52nd Street plant. TCA, a solvent used in various manufacturing processes at the plant, was stored for use in a 5,000 gallon underground tank. In January 1983, the TCA tank and other underground tanks used for storing virgin solvents were tested. The results indicated that the TCA tank was leaking. Within a few days after testing, Motorola discontinued use of all the virgin solvent tanks and began purchasing solvents in 55 gallon drums.

When the results of the tank test showed TCA leakage, Motorola notified the Arizona Department of Health Services (ADHS) and initiated a Preliminary Investigation for soil and groundwater contamination. The report of the Preliminary Investigation, which was published on December 9, 1983, indicated soil and groundwater contamination on the plant site and groundwater contamination off-site to the west. As the result of these findings, Motorola entered into a verbal agreement with the USEPA, ADHS and ADWR to characterize the environment near the plant site, identify the nature and extent of contamination and recommend remedial actions. One of the terms of the agreement was that the work would be performed in accordance with requirements established by the Comprehensive Emergency Response, Compensation, and Liability Act of 1980 (CERCLA, or the Superfund Act), Public Law 96-510. During the course of the investigation, CERCLA was amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Public Law 99-499.

Draft Remedial Investigation and Feasibility Study reports of June 1987 were prepared in accordance with the requirements of CERCLA and SARA. These reference documents contain citations for the task specifications under which the work was performed, and list draft reports issued as part of these studies (see attached Index to Administrative Record). This Remedial Action Plan has been prepared to summarize the findings of these investigations.

Voluntary On-Site Treatment

Motorola Inc., as a responsible party has volunteered to conduct the RI/FS. The Company has initiated an on-site groundwater treatment program in 1986. This included treatability testing, plus design and installation of a Pilot Treatment Plant (PTP) in the Courtyard at the Motorola plant site. (See attachment 2) The PTP is still operational and treats groundwater supplied from two extraction wells which were installed in the Courtyard area. Contaminated groundwater is treated in the PTP, and the effluent is utilized in air fume scrubbers located at the plant site.

Motorola is currently (1988) expanding the PTP from a nominal capacity of 35 gpm to 60 gpm to treat contaminated ground water on site and use the water in manufacturing processes to replace potable water supplied to the plant from the City of Phoenix. Motorola intends to maintain operation of the PTP to continue cleanup of groundwater as part of ongoing remediations.

Community Relations

A public meeting was conducted on July 11, 1988, to receive public comment on the proposed partial remedy. Response to all comments received have been prepared and appear in the Responsiveness Summary (See attachment 3). The Responsiveness Summary also outlines other community relations efforts accomplished in past years.

Purpose of Remedial Action Plan

The purpose of the RAP is to describe the operable unit as a part of the final remediation of soil and groundwater contamination. An operable unit is a remedial action that is separated from the overall site cleanup actions when it can be done expeditiousy, is cost effective, prevents contaminant migration, and is consistent with the final site remedy.

This RAP has been prepared to describe the interim cleanup of soil and groundwater contamination associated with historical disposal of waste solvents and other contaminants at the

Motorola Inc. 52nd Street Facility in Phoenix, Arizona. (See attachment 4). The Arizona Department of Environmental Quality (ADEQ) on March 25, 1988, requested the preparation of the RAP. Several alternative plans are addressed in the RAP, each considered as a partial solution or operable unit for cleanup of contamination. A complete list of all alternatives considered can be found in the Remedial Investigation/Feasibilty Study (RI/PS). The recommended alternative, or plan, will be an integral and basic element for a more comprehensive cleanup of soil and groundwater contamination.

Alternative Selected

The Remedial Action Plan serves to document the selection of Alternative C, as the operable unit for remediation of contamination. Alternative C was modified in the RAP to discourage discharge of extracted and treated groundwater in favor of beneficial use options. Alternative C consists of the following basic components:

- Onsite extraction and treatment of groundwater from the courtyard and 50th Street area;
- Onsite extraction and treatment of vapor phase organic contaminants from soils from the courtyard and 50th Street area, the acid treatment plant, and the southwest parking lot;
- Offsite extraction of groundwater designed to contain contaminant migration (east of) at the Old Crosscut Canal;
- Onsite treatment of groundwater extracted from offsite wells;
- Use of all treated groundwater at the Motorola 52nd Street facility.

Total groundwater extraction and treatment under alternative C will equal to approximately 810 gpm. Treated effluent would be used at the Motorola plant to replace water currently purchased from the City of Phoenix. The only current uses of the groundwater are one private well for lawn irrigation and swimming pool filling, and a second well which is pumped by the Salt River Project to supplement irrigation water flow in the Grand Canal. There is no current use of the groundwater for drinking water purposes.

Evaluation Criteria

The Remedial Action Plan describes the selected alternative as alternative C. Alternative C is an operable unit designed to provide:

- Overall protection of human health and the environment. It will contain migration of high concentrations of volatile organic compounds (VOC's), and treat the extracted groundwater to a level which will meet State/Federal standards for the specific uses of the water and water use restrictions.

- Compliance with applicable or relevant and appropriate requirements (ARARs) and substantive requirements of permits, (i.e pre-treatment requirement for effluent discharge to Publicly owned treatment plant, two on-site Air Quality Permits, Construction Permits and Right of Way Acquisition.)

- Long-term effectiveness and permanance. The interim remedy will maintain reliable protection of human health and the environment over time after cleanup levels have been met.

- Reduction of toxicity, mobility, or volume by using groundwater extraction and air-stripping technology.

- Short-term effectiveness. Alternative C will address the time period before Clean-up levels are achieved (construction/implementation).

- Implementability. Alternative C is technically and administratively feasible.

- Cost. The estimated capital cost is $3.1 million, operation and maintenance is $0.7 million annually, and net 20 years present worth cost is $7.6 million.

- Community acceptance. Review of public comments on the remedial Project Plan indicate the public generally accept Alternative C.

In Summary, Alternative C (the operable unit) is believed to provide the best partial remedy among the alternatives with respect to criteria used to evaluate remedies. Based on the information available at this time, therefore, the State of Arizona believes alternative C would be protective of human health and the environment, would meet applicable State and local regulations, and would be cost-effective. This partial remedy satisfies the preference for treatment that reduces

toxicity, mobility, or volume as a principal element. All substantive permit requirements will be met during implementation of this remedial action. It is determined that the remedy for this operable unit uses permanent solutions and alternative treatment technologies to the maximum extent practicable.

Outstanding issues pertaining to this operable unit will be more clearly defined and addressed during the Consent Order negotiations. One item on the list of issues is recovery of costs. The State and EPA intend to seek recovery of past and future oversite costs.

Your cooperation and voluntary actions to date are reflective of a commitment to provide a permanent remedy in the near future. This operable unit is a step in the right direction. As explained earlier, the Consent Order will constitute an enforceable agreement and will provide the vehicle to implement and accomplish containment and partial remediation. Further efforts will be required for remediation of the aquifer. This will be addressed in the Consent Order and ongoing WQARF investigations.

Thank you for your cooperation. If you should have any questions regarding this decision letter, please contact Mr. Dan Marsin at (602) 256-2338.

Sincerely,

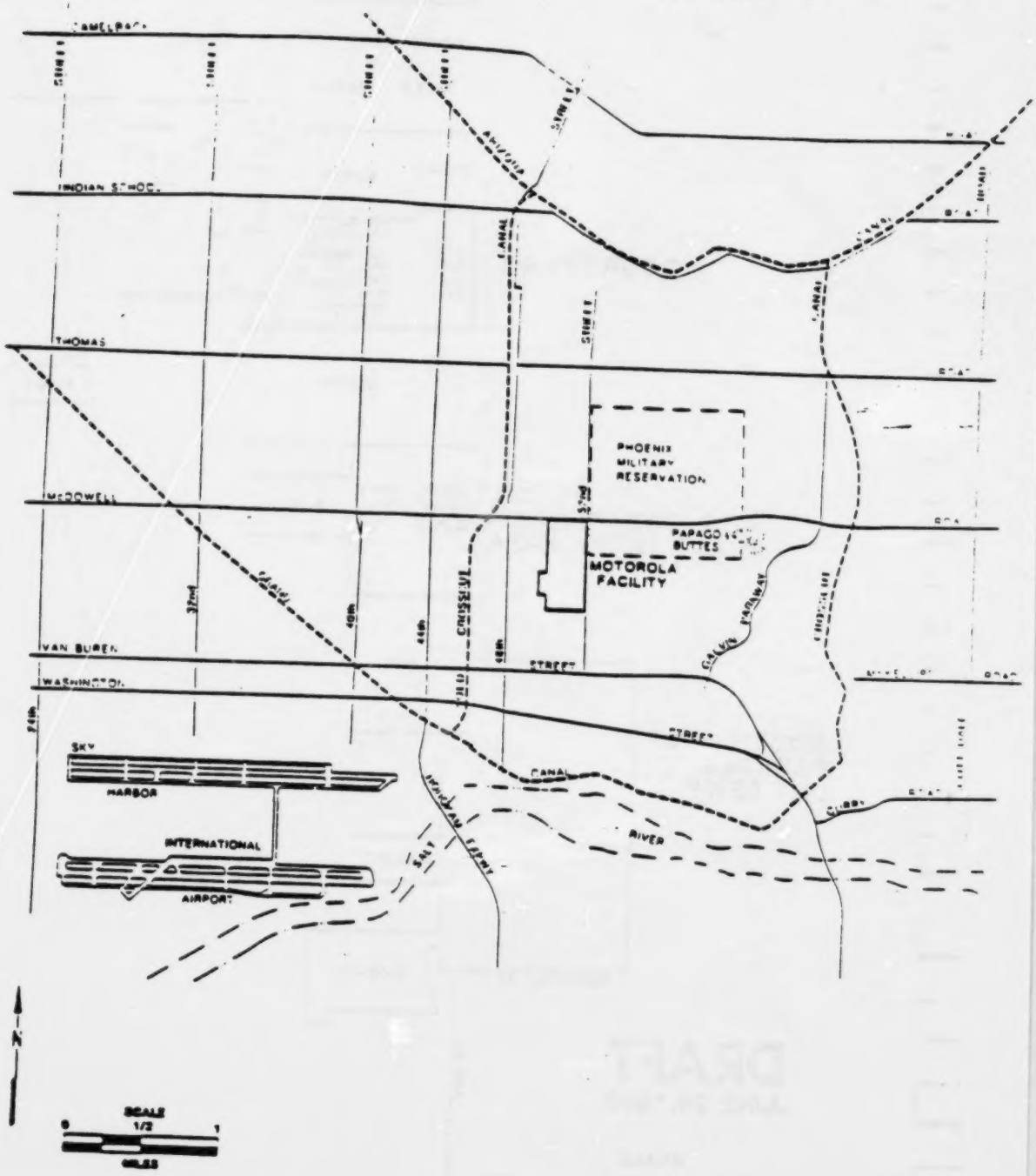
Norm Weiss
Assistant Director

NW/gls

cc: Gerald Clifford, EPA
Doug Toy, ADWR

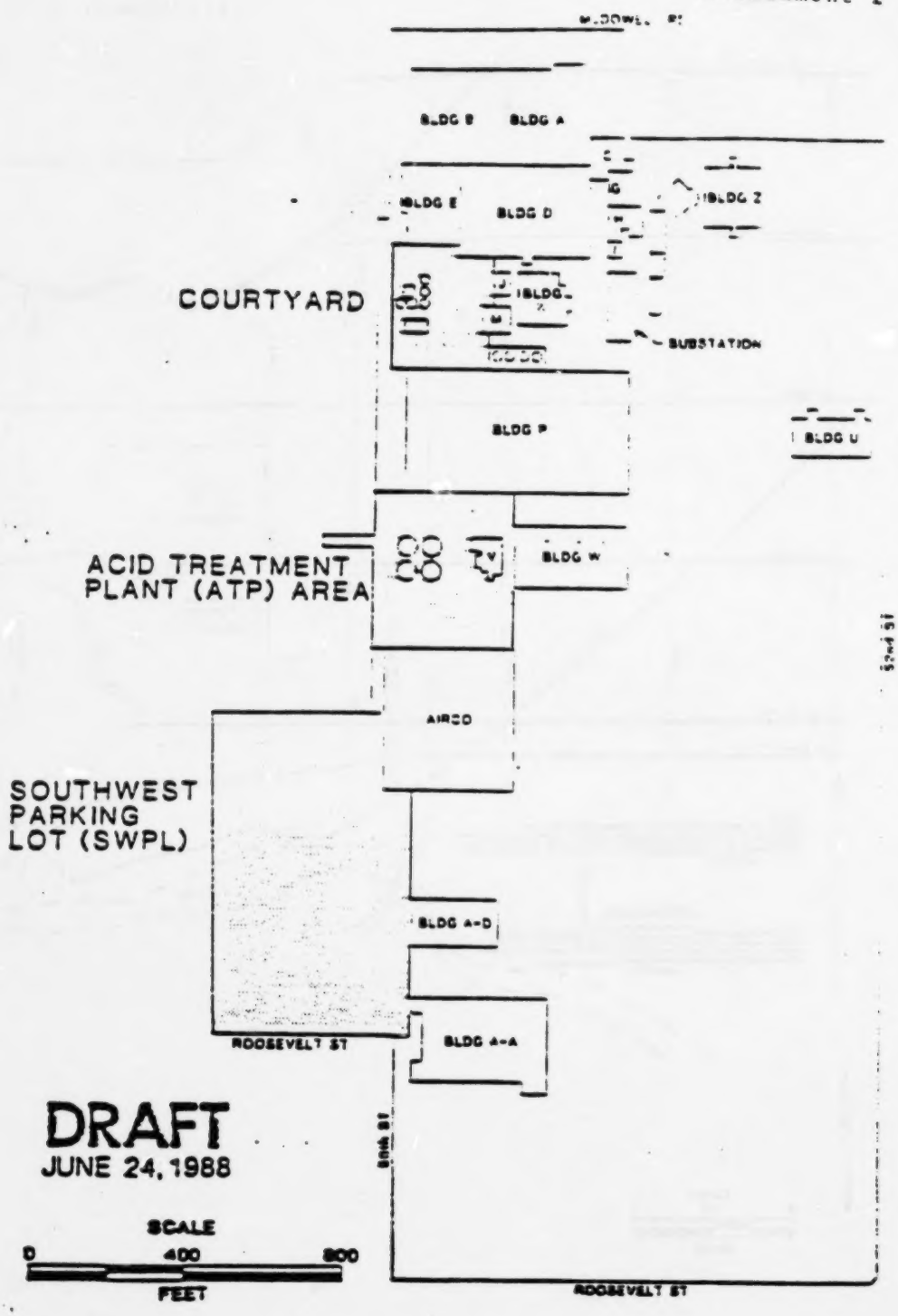
Tab C

Attachment 1



VICINITY MAP

Attachment 2



SITE PLAN
MOTOROLA 52nd STREET PLANT

ATTACHMENT 3

RESPONSIVENESS SUMMARY
MOTOROLA 52ND STREET SITE

A. OVERVIEW

During the public comment period for the Motorola 52nd Street Operable Unit Remedial Action Plan (OU-RAP) from June 24 through July 25, 1988, the Arizona Department of Environmental Quality received comments and questions on the recommended partial remediation for the Motorola 52nd Street site.

Many of the comments and questions received concerned issues that are not pertinent to ADEQ's selection of a partial remedy at the site. However, all comments and questions received are addressed in this document. In some cases involving complex questions or those requiring an involved technical response, reference is made to sections of the draft Remedial Investigation (RI), the draft Feasibility Study (FS), or the draft RAP.

A number of comments and questions concerned risk and health assessments associated with the site and indicated a need to explain the various health related studies. A public health assessment is an evaluation of potential public health impacts at a site. A health risk assessment involves characterizing the risk to human health posed by chemical releases into the environment by combining exposures and known dose-responses. An epidemiologic survey is an evaluation of incidents of diseases in an area that can be attributed to a specific environmental factor. A Risk Assessment and Public Health Assessment are included as part of Motorola's draft Feasibility Study. The Agency for Toxic Substances Disease Registry (ATSDR) completed a Health Assessment for the Motorola 52nd Street Facility on May 8, 1988. The ATSDR report concluded that water from offsite wells at the currently detected concentrations of volatile organic compounds (VOCs) and inorganic contaminants pose no significant human health risks as it is now being used, and that no follow-up health study is indicated at this time. ADEQ however, has contracted with the Arizona Department of Health Services (ADHS) to perform a health risk assessment, and an epidemiologic survey of the area around the Motorola 52nd Street facility.

Final selection of a remedial action alternative and the design and operation of that alternative will consider issues brought up during the public comment period.

B. BACKGROUND ON COMMUNITY INVOLVEMENT

As soon as the initial 1,1,1 Trichloroethane (TCA) leak was confirmed in January 1983, Motorola conducted a number of

activities to inform and update the general public and their employees at the 52nd Street facility. Most of these activities involved written correspondence, as summarized below:

Correspondence	Date 2/83	3/83	5/83	9/83	12/83	3/84
News releases to media	x	x				
Press conference					x	
Hand-delivered letters to residents near the facility	x		x	x		
Interoffice memo to 52nd Street employees	x	x	x	x		x
Summary of preminiinary findings distributed the media, neighbors, employees					x	

The October 1984 factsheet and the January 1985 Update #1 newsletter were delivered to approximately 5,000 residents around the 52nd street facility. Residents were requested to return a self-addressed stamped business reply card if they wanted to be placed on the mailing list. One hundred sixty-five (165) cards were received, 3 percent of those contacted. Agency representatives, interest groups, and elected officials were added to the mailing list. In June 1988, the mailing list numbered 450.

The CRP has been followed since December 1984 and became an appendix to the RI/FS Work Plan. Specific community relations activities that were conducted from that time through the public comment period that ended in July 1988 are discussed in Section F.

C. SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES

LETTER FROM ROBERT C. ANDERSON, P.E.

1. Question/Comment: It (Newsletter #6) does not address: (1) the migration rate of the contaminants, (2) the location of other wells used for potable, irrigation, or swimming pool water (3) an estimate of when the contaminants will reach those wells (4) how the proposed remedial action plan pumping rate and duration of pumping is designed to keep the contaminants from reaching those wells (5) the effects on dillution of contaminants from migration and dillution from future ground water charging during the course of a R.A.P. that may last as long as 20 years (6) why the pumping rates are not required to be higher.

Response: Update 52nd Street RI/FS, Newsletter #6, is intended only to summarize the extent of the contamination, the cleanup alternatives described in the draft Remedial Action Plan (RAP), and the recommended alternative. It also identifies the involved agencies and tells where the public can find out more about the site and actually participate in the cleanup decision.

2. Question/Comment: Why would the Federal Government consider funding a clean-up effort such as this that is clearly attributable to a particular industry that could be held responsible?

Response: The Federal Government (or the State of Arizona) is not considering funding this cleanup action. Motorola, Inc. will bear the entire cost including appropriate costs incurred by the Federal Government and those of the State of Arizona as a result of oversight activities.

3. Question/Comment: The leaking underground storage tank referenced was a "virgin" solvent tank and had nothing to do with the "waste" solvent collection system that was installed. Both virgin and waste solvents contributed to the contamination problems over many years.

Response: Motorola has installed a new virgin solvent system as well as a new waste solvent collection system.

4.(a) Question/Comment: Why did it take from 1982 to 1986 for a pilot treatment program to be initiated?

Response: Immediate remedial actions were initiated during the first year of the study (1983). Please refer to the RAP for additional efforts undertaken before and after the implementation of the PTP.

4.(b) What is the schedule for construction and operation of the proposed R.A.P.?

Response: The schedule for all activities to be performed in the implementation of the proposed RAP will be addressed in a Consent Order. The scheduled activities will begin only upon approval of the RAP and issuance of the Consent Order.

4.(c) How far have the contaminants traveled during the four years it took to initiate a pilot study?

Response: Contamination in groundwater is predicted to migrate at varying rates up to 300 feet/year, depending on the configuration of the contaminant plume. In 4 years, contamination could have migrated a distance of 1,200 feet or less.

4.(d) How far will they travel before the proposed R.A.P. is functional?

Response: Contamination migration rates are variable depending on many factors including local hydrogeologic conditions. Volatile organic compounds are predicted to migrate at rates approaching 300 feet per year. A primary objective of the recommended remedial action, Alternative C, is to contain further migration at the Old Crosscut Canal. As stated above, the implementation schedule for Alternative C will be established in the Consent Order.

5. Question/Comment: You list other contaminants found in the soil and groundwater sampling but you do not identify a R.A.P. except for volatile organic compounds. What are or were the sources of the other contaminants? Are the sources now under control? How are the sources monitored to prevent reoccurance? When did the contamination occur? What are the measured levels of contamination? What levels of contamination are safe? Will the contaminants continue to leach out of the soil into the groundwater? Is the soil contaminated at the surface level where it could be potentially harmful by contact with the soil or storm water runoff over the soil? Are these other contaminants migrating like the V.O.C.'s? Were measurable quantities of nickel, cyanide, or other contaminants not listed in page 3 found?

Response: Volatile organic compounds make up the major part of environmental contamination at the Motorola 52nd Street site. Inorganics will also be extracted during treatment of groundwater. Twenty-five (25) potential sources of contamination have been identified at the Motorola 52nd Street plant (see Table 2.1 of the RAP). All sources were thoroughly investigated and efforts were made to prevent any further releases. A history of chemical releases as well as measured concentrations of contaminants is contained in the Remedial Investigation Report.

All hazardous wastes are managed in compliance with the Resource Conservation and Recovery Act (RCRA) regulations to prevent unpermitted releases to the environment. The risk to public health of contamination is a function of exposure pathways as well as concentrations. A health Assessment report, dated May 2, 1988, was prepared for the project by the federal ATSDR. Also, a draft health risk assessment was prepared by Dames & Moore Chapter 7 of the draft FS reports.

Inorganic contaminants are identified in the draft RI report, and remediation of contamination is discussed in the draft Feasibility Study. The migration of inorganic contaminants is not the same as VOC contamination migration in groundwater. The inorganics bond to soil particles thus the difference in migration rate. As discussed in the draft RI, inorganic contaminants detected were found not to have migrated at the same rate as groundwater in the aquifer. Inorganic levels that were encountered in the source studies and in groundwater monitoring are reported in the draft RI report.

6. Question/Comment: How did the contaminants arrive at the Southwest parking lot area? Surface run-off? Groundwater migration? chemical spills? Leaks? In addition to Motorola property, isn't part of this general area both public and private property where natural storm water drainage flows from Northeast to Southwest washing across and under Motorola property and the public and private property? What effort is being made to prevent reoccurence (sic) of the contamination? Will the proposed R.A.P. address this area and the area on West and Southwest of the parking lot? The Newsletter indicates the wells will only extend from McDowell 200 feet South along the canal which does not appear to address potential migration from the Southwest parking lot area.

Response: The proposed offsite groundwater extraction system at the Old Crosscut Canal (Alternative C) will actually extend 2,000 feet or more south of McDowell Road, not 200 feet. The figure 200 feet was a typographical error. Model predictions indicate that the zone of capture created by this recovery system will encompass contaminated groundwater emanating from the area of the Southwest Parking Lot. Information regarding the groundwater extraction system can be found in the draft RI/FS study.

7. Question/Comment: What is scope and time frame for a forseeable "complete solution" vs. the partial cleanup or "operable unit" proposed? Why the Delay?

Response: The proposed operable unit is predicted to substantially reduce the groundwater contamination in the area of the plant site, and between the plant site and the Old Crosscut

Canal. It will also contain the high levels of contamination found to exist within that area from migrating to the west of the canal. Monitoring of the performance of the operable unit remediation and/or further studies offsite will be needed before any further remedial actions can be approved by ADEQ. A risk assessment and health effects study will also be necessary before the complete remedy, or final solution, is agreed upon and implemented. The section pertaining to modeling in the RI provides timeframe for remediation.

8. Question/Comment: What is the planned pumping rate from the groundwater beneath Motorola property? You state 700 GP? will be pumped from off-site to the Motorola plant for treatment and use. What is the total G.P.M. that the water table will be reduced? 700 G.P.M. is approximately 1 million gallons per day x 7 days/week x 52 weeks/year x ? years plus the on-site pumping/

Where is the concern for Arizonas (sic) groundwater supply problems that are widely publicized and that the Rio Salado project was going to help resolve? As you state, Motorola currently gets their water from the city of Phoenix whose primary supply is surface water, not ground water.

I believe the Motorola plant uses between 3 and 4 million gallons per day for all purposes - product processing, sanitary, cooling, etc. The reclaimed water will have very little value to Motorola, particularly since the contaminants addressed in item 5 will untimately be discharged into the city of Phoenix sewer system and then will be discharged in the effluent from the city treatment plants where they will again have the oppertunity to contaminate soil and ground water or be removed in the sludge from the treatment plants which is placed in land fills which have a similar potential for contamination. Contaminants of this nature have been a long standing problem for city treatment sytems.

Assuming a total pumping rate of 2 million gallon per day of contaminated water that can only be used in a special isolated system where it could not cross contaminate Motorolas (sic) potable or process water supplies, the use would be limited to scrubbers and cooling towers which are not likely to use that much water. The end result will likely be direct pumping of the excess to the city sewer system; which I believe is in violation of city codes, places an unnecessary load on city sewers and treatment plants, and depletes the groundwater supply.

Why doesn't the R.A.P. address proper cleaning of all contaminants and recharging back to the groundwater instead of proposing an apparently fragrant waste of one of Arizonas (sic) vital resources?

Two miilion (sic) gallon/day would supply a population of between 13 and 20,000 people.

Response: Alternative A proposes 4 to 6 wells located in the Courtyard and the 50th Street area pumping a total of 60 GPM of groundwater from the alluvium. Each well would include a sump pump in the bedrock for removal of free phase organic liquid. Alternative C would place an additional 10 wells among the Old Crosscut Canal pumping 75 GPM each. The total pumping rate for the recommended remedial action is therefore 810 GPM (approximately 1.2 million GPD or 426 million gallons annually). The treated groundwater will be beneficially used by Motorola at the plant site. Treatment levels may vary depending on uses of the water. Prior to discharge to City of Phoenix (COP) sewer all effluent will meet state Permit requirements and COP discharge requirements. Recharge of treated groundwater is not judged to be a technically viable alternative because of the thin alluvium in the plant area. Use of the treated groundwater for industrial purposes reduces the demand on the City's potable water supply. Under the State Superfund rules beneficial use of groundwater includes industrial uses.

9. Question/Comment: How will monitoring be done and who will monitor the discharges of the removed V.O.C.'s into the atmosphere from the "cleaning" system? Carbon beds have a limited capacity and must be replaced or reactivated or atmospheric discharges will occur. What is the disposal means for the spent V.O.C. contaminated carbon?

Response: Maricopa County Pollution Control discharge standards will be met with the utilization of groundwater treatment system(s). Granulated activated carbon (GAC) systems will used for treating soil gases and stripping tower off system gases, and final polishing of groundwater will vary. Current plans call for some solvent to be recovered (for recycling or incineration) by steam regeneration of the activated carbon system Other alternatives are off site disposal as a hazardous waste or off site regeneration of activated carbon. ADEQ will be attentive to all monitoring conducted by Motorola and retain the authority to observe and/or actually conduct the monitoring to assure compliance with all applicable discharge requirements.

10. Question/Comment: How will monitoring be done and who will monitor the liquid effluent from the "treatment system" to assure it is operating effectively so the V.O.C.'s (sic) are not bypassed on the cooling tower where they will be discharged into the atmosphere?

Response: Motorola Inc. will have monitoring responsibilities. However, ADEQ will closely supervise and insure the extraction/treatment systems are working efficiently and that this system protects public health and environment.

11. Question/Comment: You state T.C.A. replaced T.C.E. at Motorola in 1973. I believe you will find some T.C.E. was still being used at Motorola 52nd Street in the early 1980's.

Response: A small quantity of TCE has been used at the plant since 1980.

LETTER FROM ROBERT C. ANDERSON, P.E.

12. Question/Comment: What specific sources of contamination, both past and current, from V.O.C.'s as well as the various inorganics have been identified? What action has been taken to control the contamination sources and assure they do not reoccur in the future?

Response: Similar questions/comments were answered as part of ADEQ's response to number 5. ADEQ will closely supervise the selected alternative that when implemented will contain migration and provide treatment._

13. Question/Comment: It is stated the final RI/FS report was due 2/86. Newsletter No. 4 dated 6/86 indicates the feasibility study had just begun. Why the delay?

Response: The Newsletters are prepared to inform the public of the status of the investigation and/or remediation at the time the letters are issued. The schedule for ongoing and future activities will be stipulated in the Consent Order.

14. Question/Comment: It is stated that economic criteria is one of the factors used in determining the technology to be used for containment and treatment. I assume this means the cost of the remedial action. How is the cost evaluated in relation to the public benefit achieved? In relation to the degree of the cleanup required? In relation to the number of contaminants that must be cleaned up? In relation to the number of years it will take for cleanup? Who has input into the cost evaluation? Who makes the final decision? How much influence does Motorola have in this determination? How much influence does Motorolas Environmental Consultant (sic) have?

Response: Cost effectiveness is only one of many criteria determining the selection of a remediation plan at the Motorola 52nd Street site. (See A.A.C. R18-F-109). Protection of public health and water quality are the primary concerns. The Motorola 52nd Street site is a State Lead site with ADEQ as the lead agency involved in the decision making process.

15. Question/Comment: It is stated that cleanup of inorganic contaminants was under consideration. Newsletter No. 6 does not indicate any cleanup effort except for volatile organic carbons (V.O.C.'s). Why?

Response: Inorganic remediation will be fully addressed as part of the complete remedy. The RI/FS provides data and information pertaining to inorganics.

16. Question/Comment: It is stated there are few precedents for solving groundwater contamination problems. The concepts of pumping for chemical and physical treatment have been practiced in various parts of the United States for more than 10 years. The technology is little different than that used for wastewater treatment, potable water treatment, and many industrial applications.

Response: We agree that in the State of Arizona there are only a few full scale operations addressing groundwater contamination. Also please refer to response number 5 for more detail.

17. Question/Comment: It is stated the V.O.C.'s are not considered a health hazard when irrigation water is used for edible crops but the affect of heavy metals and other inorganic contaminants is not addressed. Why? What is the potential health hazard?

Response: The Arizona Department of Health Services (ADHS) is currently conducting a risk assessment and epidemiological survey relative to the Motorola 52nd Street site. Inorganics will be addressed along with associated risks in the final RI/FS.

18. Question/Comment: The Newsletter avoids answering the question on health hazards from contact with contaminated irrigation water by simply referencing the physical dangers in canals and irrigation ditches. What are the potential hazards? Again, V.O.C.'s are addressed but not other contaminants. If I understand correctly, well water is used for irrigation when the canals are "dried up" for cleaning and maintenance.

Response: Similar questions/comments were addressed as part of ADEQ's response to number 17.

19. Question/Comment: The Newsletter states the public hearing on the Remedial Action Plan (R.A.P.) was to be held in mid 1986. It is two years late. Why?

Response: Alternative C as presented in the current RAP is the first acceptable plan for extraction and treatment of contaminated groundwater. Limited remediation in the pilot treatment plant has been ongoing since 1986. Please also refer to the Community Relations section of this Responsiveness Summary.

20. Question/Comment: It is stated the Pilot Plant was designed to treat 35 G.P.M. According to Letter No. 6, 700 G.P.M. will be treated from off-site pumping and an unstated G.P.M. will be treated from on-site pumping. What is the total G.P.M. to be treated? What is the estimated cost of the treatment and pumping facility? What is the schedule for full capacity operation. What portion of the costs for the R.I./F.S. will Motorola pay? What portion of the costs for the Pilot Study and R.A.P. will Motorola pay? Who pays the remainder of each?

What is the G.P.M. demand for Motorolas (sic) process exhaust scrubbers and cooling water towers? What happens to the remaining G.P.M. of water pumped or will pumping be limited to the capacity needed for the scrubbers and cooling towers?

Response: See response to comment #8. It is estimated that Alternative C implementation (design and construction) and the first year of operation will cost about $3 million to $3.5 million. Motorola, Inc. will bear all costs. Thereafter, operation and maintenance will cost up to about $1 million annually. The schedule for full capacity operation will be negotiated as part of the Consent Order. The demand for treated water for the process exhaust scrubbers is approximately 170 gpm, cooling towers will vary between 120-240 gpm, and the deionization plant will use the balance of the extracted and treated water.

21. Question/Comment: It is stated the Pilot Plant was to be designed for both organic and inorganic contaminant removal. Was it? Is inorganic removal part of the R.A.P.?

Response: Yes, the PTP was designed for treatment of organic and inorganic contaminants. Please refer to the RI/FS.

22. Question/Comment: The water table contour map on Page 4 shows

ground water flow to be in a southwesterly direction, much the same as surface water flow. Letter No. 6 states interceptor wells are to be placed along the canal to approximately 200 ft. south of McDowell Road. The map on Page 5 shows a pocket of contaminants extending out to the McDowell Road/Canal area that the proposed wells would intercept. This pocket appears inconsistant with the indicated direction of ground water flow except for the stated differences in permeability. The city sewer flowing west among McDowell Road could have contributed to this pocket by leaking Motorola wastes. The McDowell sewer was the main Motorola discharge until about 1960 when a west bound sewer along Culver Street was installed. McDowell still received some Motorola discharge. The proposed interceptor wells among the canal will certainly not intercept the indicated main direction of sub-surface slope. This is supported by the statement at the bottom of Page 3 of Newsletter No. 4 which says that in the alluvium the plume appears to extend farther to the southwest but in the bedrock it is more westerly.

Response: See Figure 5.4, Predicted Zones of Influence Pumping at Old Crosscut Canal, in the Draft Remedial Action Plan. The predictions of groundwater movement and contaminant migration are presented in the draft RI and FS reports, and will be updated with data from continued groundwater monitoring. Please refer to ADEQ response to Question number 6 for additional information.

23. Question/Comment: Page 6 shows isolated contaminated pockets south of the plant. The 15" primary sewer line serving the plant (installed in the mid 1960's when the Culver Street sewer was abandoned) runs south along what was formerly 50th Street with some discharge to the city sewer on McDowell Road but the primary flow goes south. The 50th Street sewer is Motorola owned to Roosevelt Street where it enters the city system. the city sewer flows south to south of the high school and then goes west to 48th Street, and then again south to the Salt River interceptor. These contamination pockets are consistant with the direction of flow of Motorola chemical wastes. Again, leaks in the city sewer could account for this contamination.

It is stated the contaminants in these pockets "differ" from those found elsewhere. How are they different? Chemical constituents? Concentrations? What are the contaminants? Does Motorola use or have they ever used these chemicals? Who researched Motorolas past and present chemical use? Could the contaminants be a by-product of Motorolas chemical processes?

Improper treatment of waste discharges from the Motorola Facility (such as pH control) could have damaged the 50th Street and McDowell Road sewers causing leaks.

Response: This will be addressed in the final RI. See the draft RI. These potential sources were investigated with soil-gas

monitoring and other techniques employed in the RI investigation. The results are reported in the draft RI report.

24. Question/Comment: It is stated that former and present plant employees were interviewed. Those most knowledgable of the plants environmental history are: Leo Rogers, Former Environmentalist; Robert Hays, Former Environmentalist and Chemical Operations Manager; Harry Kattelman, Former Facilities Engineers & Operations Supervisor; Nicholas Hild, Former Envoronmental Manager; H. Theodore Werner, Former Environmental Legal counsel; Robert C. Anderson, P.E. I was not interviewed? Were any of the others? Which ones? Who did the interviewing? There are documented records and witnesses to the fact that spills and leaks from buried pipes and buried tanks contaminated the site. This included acid waste, heavy metals, etc. Dry wells were used routinely. In earlier years, wastes were dumped in a depression on site fondly known as "Lake Motorola".

The statements in this Newsletter indicate either the content is controlled by Motorola, and inadequate investigation was done, or the people interviewed were not knowledgeable.

Hopefully, the knowledge of current actual and potential contamination sources is more accurate.

There is no excuse to be apparently ignorant of actual facts four years into the investigation.

Response: Information was gathered from many sources as identified in Chapter 2 of the draft RI report. Please also see the Community Relations section of this Responsiveness Summary.

25. Question/Comment: Page 4 states surface water is checked for V.O.C.'s. Is it checked for inorganics? What are the results? The stormwater drainage channels along 50th Street and southwest through public and private property have a long history of chemical contamination from leaks, spills, and washdown operations.

Response: This has all been addressed in the draft Remedial Investigation report, Section 2, Source Characterization. The practices years ago are not the same as today. The current objective is cleanup to protect public health and the environment.

26. Question/Comment: Page 2 states the Pilot Plants (sic) success at removing V.O.C.'s but does not address the effectiveness of removing inorganics although it is stated that the Pilot Plant is designed for inorganic removal.

Response: See the draft FS. The newsletters are not intended to present every detail of the data collected or work performed.

Inorganics removal will be part of the criteria for authorizing a remedial alternative. Please also refer to the draft RI for design details.

27. Question/Comment: Again, there is no indication of inorganic contaminant locations or concentrations. Why? What are they?

Response: See draft RI. See response to comment number 26.

28. Question/Comment: What are the "twenty" potential sources of organic and inorganic contamination? Are these current sources? Past sources? Both?

Response: Please refer to the section on Source Investigation of the RI.

FROM PAMELA E. SWIFT, TOXIC WASTE INVESTIGATIVE GROUP, INC.

29. Question/Comment: If there is anyone here from the public, I would like for them to tell me just how much of that number they just understood.

Response: The information presented at the public meeting was to imform the public of the alternative remedial activities proposed by Motorola, Inc. The speakers attempted to present the information in non-technical language and answer any questions that were brought up. Alternative C as an operable unit has been recommended as the best plan to begin mitigation of the contamination problem at the Motorola 52nd Street site. Public response to the plan will be considered before a final decision is reached on how to proceed.

30. Question/Comment: (Norm Peterson) doesn't follow that up by telling the public there are not any health problems because we along with the EPA and along either the CDC, Center for Disease Control, are not looking for health problems.

Response: The ADHS is conducting studies to try and determine if there is a connection between TCE contamination and public health concerns. This work is being conducted under an agreement between ADEQ and ADHS. See Administrative Record Index for reference to Public Health Assessment studies.

31. Question/Comment: What they are not letting the public know

is one, in often cases, who polluted their water, how long their water was polluted and with what. And the public is out there being damaged every day.

Response: The known contaminant and extent of contamination from the Motorola Plant was reported in Chapter 2 of the RI. The water in that area is not used for drinking purposes. A Health Assessment was completed May 2, 1988 by ATSDR. It can be reviewed at the Saguaro Branch of the Phoenix Public Library or at the ADEQ Library, 1st Floor, 2005 N. Central, Phoenix, AZ. An epidemiological survey, scheduled for completion by May 1, 1989, is being conducted by ADHS.

32. Question/Comment: DEQ says the workers are not their responsibility. Who is taking care of those workers?

Response: Motorola has a fully staffed safety department, including an industrial hygienist, who monitors plant operations for compliance with OSHA regulations. The State of Arizona is an authorized state for enforcement of OSHA programs, which meets federal standards. This is administered by the Arizona Industrial Commission. The Arizona OSHA can be called at the request of employees.

33. Question/Comment: This is supposed to be a public meeting. It's held in July. Did you really want to get the public here?

Response: An accelerated schedule was implemented in an effort to begin remediation as soon as feasible. July 11, 1988 was chosen as the date for a public meeting in an effort to fit the schedules of the active participants in the Motorola 52nd Street Project during the 30 day public comment period. The site of the meeting was picked for the convenience of area residents and proved to be quite comfortable.

Intent is to get interested public to the meeting. It was held in a location near the plant. The meeting was held in the evening to facilitate greater attendance. Preceeding the meeting notice was published in local newspaters on July 7, July 8, and July 25, 1988. Update #6 also announced the public meeting. It was hand delivered to the 5,000 nearby residents, and mailed to 450 persons on the mailing list. The month the meeting was held is basically irrelevant.

34. Question/Comment: I want these in my comments, and by the way, I want the comments sent to me this time. I have heard that since '83 you were not really making transcripts to properly address my concerns.

Response: A written transcript of the entire public meeting was made and is available for review at ADEQ's office at 2005 North Central Avenue in Phoenix.

35. Question/Comment: I have some problems with Dames & Moore doing the studies and they also are on almost a full-time basis with the city of Phoenix.

Response: See ADEQ response to similar comment number 66.

36. Question/Comment: The great letters that were sent out by the EPA, or DEQ or both, the last count I had, those letters that you are mailing to the public, 15 people.(sic) Is that the count? That's the count I have on record. That's why I didn't get noticed.

Response: Ms. Swift and 450 other interested parties were notified of the public meeting by regular mail. Notices were delivered by hand to about 5000 residents throughout the area of the Motorola 52nd Street site.

37. Question/Comment: I doubt very seriously that Motorola has been out $10 million.

Response: Motorola's latest figures indicate the company has spent approximately $10.5 to $10.6 million on this project. This total includes expenditures for source elimination. The preliminary investigation, the remedial investigation, the feasibility study and Remedial Action Plan. This figure has been verified by ADEQ. Please also see Mr. Steve Smith's response to a similar question in the Public Meeting record.

38. Question/Comment: I'm asking you to please send me a list of every dime the state has been out on this Motorola mess because I have been finding out through other investigations that the Department goes in and takes soil samples and puts monitoring wells down and does all sorts of things and never recovers the cost.

Response: ADEQ is currently compiling a list of all activities it has participated in and the costs incurred relating to the Motorola 52nd Street Project. The mechanism for cost recovery, namely the Consent Order, is currently being drafted. Some samples have undoubtedly be split and analyzed by the State Lab to verify results reported by Motorola. The State of Arizona has incurred none of the capital expenditures relating to the project. The state will also recover future oversight costs.

39. Question/Comment: These technical assistance grants that were mentioned to the public, I'm going to comment about that because we have jumped through that hoop.

Response: The Technical Assistance Grants (TAG) program is a federal program designed to financially assist qualifying public groups in hiring experts to represent their views and explain technical aspects of projects such as the Motorola 52nd Street Project. ADEQ will assist such groups in making applications under the TAG program.

40. Question/Comment: I would also like the physical address of all of the wells that were polluted.

Response: See Table 1.6 in the draft Feasibility Study (F/S).

FROM ROBERT C. ANDERSON, P.E.

41. Question/Comment: They are discharged to the sewer along McDowell Road both ways. There is a natural drainage ditch runs northeast to southwest to this site. Back in the early days that was an open ditch. Motorola dumped their chemicals in it.

Response: Please refer to the Source Investigation section of the RI and Table 2.1 of the RAP.

42. Question/Comment: That's cyanide waste treatment.

Response: Please see response to comment number 41.

43. Question/Comment: Heavy chemical use, discharges into the atmosphere, heavy discharges chemicals to sewer. (sic)

Response: Please see response to comment number 41.

44. Question/Comment: One time in the late '70s the drains in the floors had been eaten through to the extent that they brought in several Ready-Mix trucks, concrete Ready-Mix trucks, to fill the hole in the ground under that building.

Response: Please see response to comment number 41.

45. Question/Comment: How about a leaking chrome tank in that area?

Response: Please see response to comment number 41.

46. Question/Comment: There was some question about where flourides came from. How about from the acid waste lines.

Response: Please see response to comment number 41.

47. Question/Comment: How about the heavy metals.

Response: Please see response to comment number 41._

48. Question/Comment: You talk about the plume from the plant. You are probably seeing the tail of what was left.

Response: Please see response to comment number 41.

49. Question/Comment: Spills, contamination, washdown, leaks, washed right through the plant into these people's property. The high school is down here. Kids played in that ditch. How did the contamination get in the south parking lot? that's one way right there.

Response: Please see response to comment number 41.

50. Question/Comment: They had a sewer that they tapped into going down Culver Street, surcharged to the point that it overflowed into the people's yards.

Response: Please see response to comment number 41.

51. Question/Comment: Later they put in a 15 inch sewer going south. That sewer is known to have leaks.

Response: Please see response to comment number 41.

52. Question/Comment: In the influent boxes to the acid waste treatment system, eaten through, has been leaking in the ground for years.

Response: Please see respose to comment number 41.

LETTER FROM PAMELA E. SWIFT, TOXIC WASTE INVESTIGATIVE GROUP, INC.

53. Question/Comment: What is the groundwater migration and surface water run-off? A map of this should be encluded in the Draft Remedial Action Plan.

Response: These subjects are covered in the RI.

54. Question/Comment: Where will Motorola get their water from for this project? Since Motorola does not have any water rights and this project will require thousands and thousands of gallons of water it is important that Motorola state where this water will come from. The City of Phoenix, whould not supply water to Motorola for this project as they have stated in the past that there is a great water shortage in the City. This fact has been driven home by the City of Phoenix's increased water rates to the public. What is the total amount of water used by Motorola?

Response: The beneficial use of treated groundwater will reduce Motorola's demand on City of Phoenix supplied water. Alternative C calls for the withdrawal of about 810 gpm of groundwater from onsite and offsite extraction wells. It is proposed that the water be withdrawn under a Poor Quality Groundwater Withdrawal Permit to be issued by the Arizona Department of Water Resources (ADWR), and monitored by ADWR, ADEQ, and Maricopa County.

55. Question/Comment: Who will monitor the discharges of contaminates into the atmosphere from the air stripping process? Air monitoring should not be done by Motorola as they cannot be trusted to turn in proper readings. This should be done by the department's air pollution department, (purchasing equipment for this project if you have to). Also, air monitoring should be taken of the entire plant before and after the air stripping project begins. I have long suspected that Motorola has extensive air pollution around thier (sic) plant and has not been truthful in the results of their air monitoring program. For this reason they should not be allowed to do their own monitoring.

Response: The Maricopa County Pollution Control has authority to monitor air emissions. See also response to comment number 9.

56. Question/Comment: What chemicals are being used at the Motorola plant at this time. This is a very important factor as I believe that Motorola is still using TCA amoung (sic) other chemicals that are hazardous to the public. Motorola is one of

the states biggest polluters. They have little or no regard for the public health and well being. Chemicals are being used by Motorola that are harmful to the public. Motorola should be required to list all of the chemicals that they are using. The department should test for all the chemicals that Motorola has used in the past and that Motorola is using now. Water, soil, and air test should be taken at this site. While the department is looking at this one problem, I suspect that Motorola is creating several other chemical problems.

Response: Information on chemical use and discharge is to be made available to the public under the Emergency Planning and Community Right-to-Know Act program. Also, under the State's Hazardous Waste Management Act, hazardous materials are regulated as to storage, transfer, treatment and disposal.

57. Question/Comment: More thought needs to be given to the treatment system. This entire section is not complete. What assurance does the public have that Motorola will operate this system as they have stated? An outside firm should completely take over the treatment system and apply BADCAT (sic) to this project. Their (sic) are too many holes in the proposed treatment operation as it is now.

Response: Best Available Demonstrated Contol Technology (BADCT) will be applied. Through the Poor Quality Ground water Withdrawal Permit process, administered by ADWR, and the Consent Order to be administered by ADEQ, a monitoring system will be established for the treatment process. Reports would be required on a regular basis and oversight would be as specified in the Consent Order.

58. Question/Comment: State and Federal money should not be used in this project at all. Motorola made the mess and should use their money to clean it up. So far the department has thousnads (sic), if not millions, invested in this project and have not made an effort to recover public funds used to date. Since Motorola has poison poisoned (sic) the environment for miles around their plant and has no doubt caused endless damage to the public's health and well being, it is foolish to use the public's money to help Motorola clean up this mess. The department should send a bill to Motorola for the cost incurred to date. The Environmental Protection Agency should also send a bill for cost to Motorola.

Response: Please see response to comments number 2 and number 38.

59. Question/Comment: Why is Motorola allowed to store chemicals,

that are classified as hazardous waste, for over ninty (sic) (90) days before shipping them off site?

Response: Motorola does not store hazardous wastes on site over 90 (ninety) days. Storage of chemicals must follow RCRA requirements.

60. Question/Comment: Un-used chemicals ploouted (sic) the environment but have not been properly addressed in the Drfat (sic) Remedial Action Plan. Not all of the chemicals that polluted were hazardous waste. Are chemicals, other than hazardous waste, being monitored by the Department? If not, why not?

Response: Other pollutants are being monitored. Onsite chemical handling is conducted in accordance with applicable laws, regulations and corporate guidelines.

61. Question/Comment: Since it has taken so long for this peoject to get off the ground, how far have the contaminates traveled? What is the projected travel distance for these environmental hazards before this project is completed.

Response: Please refer to the draft RI and FS reports as well as the responses to questions number 4(d) and number 22.

62. Question/Comment: I doubt that Motorola has invested over 10 million in this project. the department should not use Motorola's figures in their printed matter since they have not seen the proper and correct talley sheet for Motorola's cost to date.

Response: See response to comments number 37 and number 38.

63. Question/Comment: Dames and Moore does work for the City of Phoenix. They are doing work for the City regarding the 19th Avenue Landfill. In the past, Motorola used the 19th Avenue Landfill, for this reason, and many others, Motorola should not use Dames & Moore as their consultants. This is a clear conflict of interest. The department should not relay soley (sic) on the Dames and Moore (sic) report. They should do their own studies and charge it back to Motorola.

Response: See response to comment number 35. Motorola is not using Dames & Moore as its consultant on the 19th Avenue Superfund project. As required under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Section 104,

Motorola, Inc. through its contractor, Dames & Moore, has demonstrated the qualifications necessary to conduct the RI/FS and implement remedial actions at the Motorola 52nd Street facility. All activities by Motorola and its contractor(s) in conducting the RI/FS and any remedial actions are subject to the oversight of ADEQ and will in no way be subjected to a lesser standard of performance or liability than if ADEQ was conducting the RI/FS and remedial action.

64. Question/Comment: Contaminated wells in the property should be closed down and Motorola should pay the cost of supplying water to the property owners.

Response: Had a threat to public health existed this program would have been implemented. No private wells have been identified which are in use for drinking water purposes. Furthermore, the ambient quality of the groundwater affected by VOC contamination is too high in total dissolved solids (TDS) to be utilized economically as a source of potable water. Therefore, groundwater in the area is not used for potable purposes at this time. Potable water is supplied to the area by the City of Phoenix via surface water sources.

LETTER FROM MATTHEW R. BERENS, ESQ., HERON, BUCHETTE, RUCKERT, & ROTHWELL, FOR THE PHOENIX UNION HIGH SCHOOL DISTRICT #210

65. Question/Comment: Groundwater is currently contaminated beneath the East High School property. The extent of contamination beneath the East High School is unknown.

Response: This is generally correct. Model predictions are based on a source of contamination (TCE) existing in the subsurface in the area of the Courtyard. Predictions cannot represent all observations accurately. In addition, other potential sources such as in the Southwest Parking Lot could be contributing to the observed contaminant levels in the area of East High School property. Please also refer to figure 4.3 in FS.

66. Question/Comment: The ground water will be contaminated for a long time in the future.

Response: Please see the response to comment #68. Also, Alternative C consists of plans to reduce VOC contamination directly upgradient of the abandoned school property by extracting and treating soil-gases from the unsaturated zone at the Southwest Parking Lot. This remediation is expected to also

reduce VOC contaminant levels in ground water downgradient of the Southwest Parking Lot. Please refer to figure 4.3 in FS for additional information.

67. Question/Comment: Motorola's proposed remedial program does not address present contamination beneath the East High Property. There is currently no plan to remediate the present ground-water contamination beneath the East High property.

Response: Alternative C, consisting of 10 wells along the Old Crosscut Canal pumping 75 gallons per minute each, does address present contamination beneath the East High Property. The northern half of the East High property is within the predicted zone of influence of the proposed line of wells along the Old Crosscut Canal. At the same time onsite remediation (Alternative A) will reduce contaminate concentrations upgradient of the East High property. In addition, see responses to comment number 70.

68. Question/Comment: Volatile organics in the gas phase (soil gas) have been detected beneath the East High property.

Response: Soil boring results show soil gas contamination. Remediation in the Southwest Parking Lot will result in reduction of soil-gas concentration (see comment number 70). It should be noted that the observed concentrations of VOCs in the area of the East High School property are approximately the same order of magnitude as that detected in ambient air.

69. Question/Comment: The use of water beneath the property is limited.

Response: For several reasons, no beneficial use of groundwater is effected at the present time. The alluvium is thin; bedrock is shallow. Water is supplied economically by the City, and inorganic background water quality would probably require treatment before use in any case.

D. ATTACHMENT LISTING COMMUNITY RELATIONS ACTIVITIES CONDUCTED AT THE SITE PRIOR TO AND DURING THE PUBLIC COMMENT PERIOD.

Mailing List

The mailing list was continually reviewed and updated throughout the RI/FS. At three different times, newsletters were

hand delivered to approximately 5,000 residents asking them to return a self-addressed stamped reply card if they wanted to be added to the mailing list. At the time of the July 11, 1988 public hearing, the mailing list numbered 450.

Central Information Source

Three contact persons were designated to respond to inquiries from the public. Their names, addresses, and telephone numbers were identified in press releases, newsletters, and local information repositories. These individuals were the community relations specialists from EPA, ADEQ, and Mr. Ken Phillips of Motorola.

Local Information Repositories

Two information repositories were established: the Saguaro Branch of the Phoenix Public Library and the ADEQ Library. During 1985, the Balsz School was the repository until the branch library opened. Technical reports, fact sheets, newsletters, articles, and other written materials were placed in these repositories throughout the RI/FS. The locations and hours were advertised in the newsletter. The Administrative Record also contains a complete index of project data and documents.

Task Force and Technical Subcommittee

A Task Force, comprised of representatives from federal, state, and local agencies, was established to provide technical oversight to Motorola, Inc. in performing RI/FS activities. A Technical Subcommittee, chaired by ADWR, was formed to facilitate review and approval of the technical aspects of the RI/FS.

The status of community relations was a regular agenda item at the Technical Subcommittee meetings. Committee members were kept informed of community relations activities, and helped to identify public concerns and additional public information needs. They were better able to understand the impact of committee decisions or relationships with the community.

Factsheets and Newsletter

One factsheet and six newsletters, known as "Updates," were prepared and distributed between October 1984 and June 1988.

Factsheet

October 1984 Summary of site history, activities to date

and RI/FS Work Plan.

Update #1 January 1985	Specific RI/FS tasks; answers to citizens questions.
Update #2 May 1985	Results of resident interviews; announcement completion of Phase I; status of Phase II studies; glossary.
Update #3 October 1985	Plans for pilot treatment plant; overview of geology of area; summary of soil gas results; glossary.
Update #4 June 1986	Status report on sources verification, pumping tests, groundwater model, water quality tests; announcement of start of feasibility studies; glossary.
Update #5 December 1986	Description of pilot treatment plant operation; status of feasibility studies; glossary.
Update #6 June 1988	Summary of draft Remedial Action Plan (RAP) focusing on remedial alternatives; glossary; announcement of public comment period and public meeting.

Drilling notices

During the RI, when wells were being drilled, notices were delivered to nearby residents. These notices informed them of the drilling schedule, how the site would be secured, what the noise level might be, how the drillers would be dressed, and any other inconveniences they might encounter. They were given names and telephone numbers to call if they had questions. All drilling has been done in accordance with state regulations under ADWR's authority.

Public Comment Period

A 30-day public comment period on the draft RAP extended from June 24 to July 25, 1988. Notice of the comment period and the upcoming public meeting was published in local newspapers on July 7, July 8, and July 12, 1988. Update #6 also announced the

comment period, the availability of the draft RAP, and the public meeting. This was hand delivered to the 5,000 nearby residents, and sent to those on the mailing list on June 24, 1988. The draft RAP was placed in the information repositories.

ATTACHMENT 4

ENVIRONMENTAL CONTAMINATION

A. On-site and Off-Site Contamination

GROUNDWATER 1985 - 1986

Contaminant	Maximum Values On-Site	Off-Site
Arsenic	2.6 ppm	0.4 ppm
Cadmium	1.9 ppm	140 ppm
Chromium	3.5 ppm	1.6 ppm
Lead	0.8 ppm	0.1 ppm
Nitrate	680 ppm	12 ppm
1,1,1 Trichloroethane	472 ppm	7 ppm
Trichloroethylene	1280 ppm	37 ppm
Trans-1, 2-Dichloroethylent	19.6 ppm	28 ppm
1,1-Dichloroethane	15.8 ppm	0.3 ppm
1,1-Dichlorethylene	93.6 ppm	5 ppm
Tetrachloroethylene	127 ppm	0.4 ppm

Levels of inorganics determined from unfiltered samples.

Soil On-Site 1985-1986

		Depth
1,1,1-Trichloroethane	189 ppm'	25 Feet
Trichloroethylene	222 ppm'	28.5 Feet
Tetrachloroethylene	130 ppm'	20 Feet
Carbon Tetrachloride	31 ppm	25 Feet
Ethyl Benzene	120 ppm'	20 Feet

'Values found in soil from a single soil boring taken in Courtyard area

Soil-Gas 1985

	On-Site	Depth	Off-Site	Depth
1,1,1 Trichloroethane	10000 ppb	3.2 Feet	7000 ppb	1.7 Feet
Trichloroethylene	5000 ppb	3.2 Feet	100 Fpb	1.7 Feet
Tetrachloroethylene	4000 ppb	3.2 Feet	8000 ppb	1.7 Feet
Trichlorotrifluoroethane	40000 ppb	3.2 Feet	2000 ppb	1.7 Feet

ppm-parts per million.
ppb-parts per billion
Maximum Off-Site values were found immediately adjacent to the on-site sampling point where maximum on-site contaminant levels were found.

Exhibit A

COMPARISON OF REMEDIAL ACTION ALTERNATIVES

Issue	No Action	Plan A	Plan C	Plan D
1. Postulated reduction of threat to public health	No	Yes	Substantial	Substantial
2. Amount of ground water pumping for treatment	0	60 gpm	810 gpm	3500 gpm
3. Effective containment of off-site contaminant migration	No	No	Yes	Yes
4. Need for off-site treatment/disposal	No	No	No	Yes
5. Total costs (Capital + First Year O&M) and Cost Per Gallon TCE Removed	N/A	$1.7 M	$3.8 M	$8.5 M
6. Institutional Requirements	N/A	Minimal	PQGWWP, Air Emissions	Plan C + Aquifer Protection Permit and Water Rights
7. Beneficial Use	None	100% in plant	100% in plant	Off-site disposal; exceeds on-site capacity

Tab D

administrative Record Index
not included.